Influence of Indoor Environment and Occupant Behaviour on Energy Consumption in Passive House Apartments - DTU Orbit (08/11/2017)

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In 2012 Køge Boligselskab built 9 building blocks totalling 126 passive house apartments. Their monitored space heating demand (SHD) has been a lot higher than the passive house requirements. The aim of this study was to identify why, and how it relates to indoor environment and occupant behaviour. The SHD and indoor environment was analysed and corrected and by performing a statistical analysis, different parameters' influence on SHD was determined. By simulating an apartment block, the effect of internal heat transfers between the apartments was determined. Furthermore, simulations were used to evaluate how the SHD was affected by different patterns of occupant behaviour. The monitoring indicated problems with overheating. However, the analysis suggested that the occupants actively chose these high temperatures. Simulations showed that internal heat flows could be up to 11.7 kWh/(m2a) per apartment. Furthermore, the results suggested that the indoor temperatures, weather conditions and occupants' window opening could explain the higher SHD.

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